

A study of clinical profile, etiopathogenesis and outcome of patients with sodium and calcium abnormality in tuberculosis

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ABSTRACT

Background

Tuberculosis is one of the most common infection in India and is associated with high mortality. Tuberculosis ranks above HIV/AIDS as one of the leading causes of death from an infectious disease, even though with timely diagnosis and correct treatment, most people who develop tuberculosis can be cured. Knowledge of electrolyte abnormality seen in tuberculosis patients can result in early detection and treatment of these abnormalities, possibly shorten the hospital stay, morbidity and mortality associated with the disease. We studied the prevalence of sodium and calcium abnormality in adult patients admitted with a diagnosis of tuberculosis in general medicine ward.

Objectives

Primary objective

1. To calculate the prevalence of hypo/hyponatremia and hypo/hypercalcemia.

Secondary objectives

1. To assess the mechanism of hyponatremia
2. To assess the relation between type of tuberculosis and electrolyte abnormality
3. To assess outcome at discharge in relation to electrolyte abnormality

Methods

This was a cross sectional study that included patients who were admitted with a diagnosis of tuberculosis and fulfilled the eligibility criteria. One hundred in-patients were enrolled from general medicine wards in a tertiary centre in South India. Baseline characteristics, co-morbid illnesses were noted. The diagnosis of TB was based on clinical features, imaging, microbiology (smear, culture) and histopathology. Blood samples were collected at the point of enrolment into the study for measurement of necessary biochemical parameters.

Results

The prevalence of hyponatremia detected in the study was 43%. There were no cases with hypernatremia. The prevalence of hypocalcemia and hypercalcemia detected in the study was 1% and 4% respectively. The predominant mechanism of hyponatremia in our study was syndrome of inappropriate anti-diuretic hormone secretion (SIADH), which was present in 65% of cases with hyponatremia. SIADH was the predominant mechanism of hyponatremia in pulmonary and CNS tuberculosis, contributing 70 and 80 per cent respectively. Five of the recruited patients expired during the course of illness. Four of these patients had hyponatremia and one had hypercalcemia. The impact of sodium and calcium abnormality on outcome was not statistically significant.

Conclusion

Our study suggests that hyponatremia is quite prevalent in patients admitted with tuberculosis and SIADH is the most prevalent mechanism of hyponatremia. The prevalence of calcium abnormality was sparse. Early detection and treatment of underlying electrolyte abnormality can potentially reduce mortality and morbidity associated with tuberculosis and reduce duration of hospitalization. Longitudinal studies can be used to assess the incidence of electrolyte abnormality which develop over the course of illness. Further research into the prevalence of potassium, magnesium and chloride abnormalities can add to the lacunae of knowledge.

